

REMARKS

Claims 1-10 were examined and reported in the Office Action. Claims 1-10 are rejected. Claims 1-16 remain. Claims 1 is amended. Attached hereto is a marked-up version of the amendments to the application as indicated above.

Applicants request reconsideration of the application in view of the following remarks.

I. 35 U.S.C. § 103(a)

Claims 1-10 are rejected in the Office Action under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,027,833 issued to Ueda et al. ("Ueda") in view of either US Patent No. 5,595,838 issued to Yamada et al. ("Yamada") or US Patent No. 6,337,159 issued to Peled et al. ("Peled") [equivalent to W096/27908 published September 12, 1996]. Applicants respectfully disagree.

Applicants' claim 1 contains the limitations of "A negative active material for a rechargeable lithium battery comprising: a core including crystalline carbon, amorphous carbon or a mixture thereof; and a carbon shell formed around the core, the carbon shell including amorphous carbon with a metal selected from the group consisting of a transition metal, an alkali metal and an earth metal, the carbon shell being an intermediate structure between an amorphous structure and a crystalline structure." Therefore, Applicants' claimed invention has a carbon shell that is neither an amorphous structure nor a crystalline structure, but "an intermediate structure between an amorphous structure and a crystalline structure." Thus, Applicants' invention results in improved capacity and efficiency over the prior art.

Ueda discloses a non-aqueous electrolyte secondary cell having a core made of crystalline graphite (carbon) structure. Ueda also discloses that a "low crystallinity or amorphous carbon layer 312 at least partially covering the core 311...." (Ueda, column 8, lines 9-13). Ueda does not disclose, teach or suggest a "carbon shell being an intermediate structure between an amorphous structure and a crystalline structure."

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Yamada discloses a non-aqueous secondary battery arranged having "graphite-like planes [] arranged and stacked in an onion-like shell micro-texture ..." (Yamada, column 3, lines 44-49). Yamada does not disclose, teach or suggest a "carbon shell being an intermediate structure between an amorphous structure and a crystalline structure."

Peled discloses a non-aqueous electrochemical cell arranged having a synthetic passivating layer (SEI) being made of "MACO₃, M₂ CO₃, alkali semi-carbonates, MAO, M₂ O, MAS, M₂S and alkali-and alkaline-earth metal salts of surface carboxylic groups (M=alkali metal, MA=alkaline earth metal). The preferred metal ion for the synthetic SEI is lithium or at least it should be the major constituent with up to 30% (atomic) of another M or MA action, or their mixture." (Peled, column 4, lines 1-8). Peled does not disclose, teach or suggest a "carbon shell being an intermediate structure between an amorphous structure and a crystalline structure."

Thus, since neither Ueda, Yamada nor Peled teach, disclose or suggest the limitations of Applicants' amended claim 1, Applicants' amended claim 1 is not obvious over the combination of Ueda in view of either Yamada or Peled. Moreover, the point in time that is critical for an obviousness determination is at the time of invention. "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." (W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983)). Further, obviousness cannot be established by hindsight combination to produce the claimed invention. (In re Gorman, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed.Cir.1991)). "Thus, it is impermissible by using hindsight to provide a combination of that which is not disclosed, suggested or taught, albeit for Applicants' disclosure."

Additionally, the claims that depend on claim 1, namely claims 2-10, are also not obvious over Ueda in view of either Yamada or Peled for the same reasons.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection for claims 1-10 as being unpatentable over Ueda in view of either Yamada or Peled is respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely 1-16, patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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Dated: September 4, 2002

By: _____

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CERTIFICATE OF FACSIMILE TRANSMISSION

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I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office, BOX Non-Fee Amendments, Commissioner for Patents, Washington, D.C. 20231, on September 4, 2002.

Linda D'Elia

September 4, 2002

Attachment: Version with markings to show changes made.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. (Amended) A negative active material for a rechargeable lithium battery comprising:

a core including crystalline carbon, amorphous carbon or a mixture thereof;
and

a carbon shell formed around the core, the carbon shell including amorphous carbon with a metal selected from the group of consisting of a transition metal, an alkali metal and an earth metal, the carbon shell being an intermediate structure between an amorphous structure and a crystalline structure.